

# **ICE PROTECTION HWG STATUS**

**PRESENTATION TO ARAC TAEIG**

**SEPTEMBER 11, 2001**

*Zb, 11.11.11*

## **17TH IPHWG MEETING HELD AT MONTREAL, JUL 16-20, 2001**

The purpose of the meeting was:

1) Task 2 - Review activities completed on Task 2, plan future activities

- Majority of the meeting was spent discussing the large droplet characterization and reviewing available data in an effort to bound the scope of the task.
- Agreed to separate the large droplet definition from the current Appendix C. May need to consider a small droplet environment to be used in conjunction with the large droplet definition.

2) Task 1- Discussion of Task 1 Certification Rule Proposal documents released to TAEIG

- No significant questions or discussion was raised regarding Task 1 report.

## **IPHWG - TASK 1**

Task 1 - As a short-term project, consider the need for a regulation that requires installation of ice detectors, aerodynamic performance monitors, or another acceptable means to warn flight crews of ice accumulation on critical surfaces requiring crew action (regardless of whether the icing conditions are inside or outside of Appendix C of 14 CFR Part 25). Also consider the need for a Technical Standard Order for design and/or minimum performance specifications for an ice detector and aerodynamic performance monitors. Develop the appropriate regulation and applicable standards and advisory material if a consensus on the need for such devices is reached.

## STATUS ON TASK 1 PRODUCTS

### Proposed Part 121 Operations Rule and associated advisory materials

- FAA economic analysis in work. Assistance requested from manufacturers and RAA to develop costs with regard to ice detector installation.

### Proposed Part 25 Certification rules and associated advisory materials

- At the June meeting TAEIG vote to submit the Task 1 report to the FAA with a recommendation for Option C. Option C proposed to withhold action on proposed §25.1420 until further progress is made on the Task 2 deliverables. The proposal to amend §25.1419 could proceed. FAA report at July meeting stated responses to the Task 1 report should be available by the October Meeting.

## **IPHWG - TASK 2**

Until Task 1 material is returned to the group after FAA processing, the meetings will be devoted to task 2

Task 2 - Review National Transportation Safety Board recommendations A-96-54, A-96-56, and A-96-58, and advances in ice protection state-of-the-art. In light of this review, define an icing environment that includes supercooled large droplets (SLD), and devise requirements to assess the ability of aircraft to safely operate either for the period of time to exit or to operate without restriction in SLD aloft, in SLD at or near the surface, and in mixed phase conditions if such conditions are determined to be more hazardous than the liquid phase icing environment containing supercooled water droplets. Consider the effects of icing requirement changes on 14 CFR part 23 and part 25 and revise the regulations if necessary. In addition, consider the need for a regulation that requires installation of a means to discriminate between conditions within and outside the certification envelope.

## **IPHWG FUTURE MEETING ACTIVITIES**

As stated in the previously submitted Task 2 report, the group recommends to TAEIG that IPHWG develop at least interim SLD certification standards

- May not be a complete revision of the Appendix C envelopes.
- Should be sufficient to permit generation of ice shapes for use in the remainder of Task 2

Prior to meeting 17, the IPHWG believed that interim standards could be completed to concept approval during first quarter of 2002. However, this target could be at risk depending on the level of detail required for concept approval.

- Detailed information on how the SLD envelopes should be presented could be challenging to reach consensus on.

**IPHWG FUTURE MEETING ACTIVITIES (CONTINUED)**

More detailed planning of the work required to complete Task 2 is required prior to establishing a credible schedule.

- A sub-group has been formed to address a detailed work plan and associated schedule.

Expect to have a more detailed work plan and schedule by the end of the next meeting (Oct. '01).

**MEETING #18 OBJECTIVES**

**TASK 1**

1. Review FAA response to Task 1 report

**TASK 2**

1. Review activities and action items completed on Task 2 since meeting #17
2. Deliberations on drop size and LWC characterization of SLD
3. Consideration of the sensitivity effects of drop size and LWC characterization on airfoils
4. Update of the SLD road map for engineering tools
5. Review milestones and develop schedule for Task 2



**IPHWG FUTURE MEETING SCHEDULE**

|                              |  |
|------------------------------|--|
| <b>OCTOBER 22 - 26, 2001</b> | <b>LINKÖPING, SWEDEN (SAAB)</b>  |
| <b>FEBRUARY 4 - 8, 2002</b>  | <b>TBD, NORTH AMERICA<br/>(SANTA FE OR DALLAS/Ft WORTH)</b>  |
| <b>MAY 20 - 24, 2002</b>     | <b>TOULOUSE, FRANCE</b>  |
| <b>SEP 9 - 13, 2002</b>      | <b>TBD, NORTH AMERICA<br/>(SANTA FE, DALLAS/Ft WORTH, ATLANTA,<br/>CHICAGO, SAO PAULO BRAZIL (EMBRAER)</b> |
| <b>DEC 2 - 6, 2002</b>       | <b>TBD<br/>(BRUSSELS, HOOFFDDORP)</b>  |